

ABSTRACT OF THE INVENTION

The present invention relates to identification of agents that play a role in regulating brain amyloid- β ($A\beta$) levels *in vivo*. The invention provides compounds and methods of using such compounds to treat amyloidogenic conditions. It also provides a useful animal model for screening for and evaluating candidate amyloid inhibiting or therapeutic compounds. In particular, ovariectomy (ovx) and estrogen replacement were found to affect brain $A\beta$ levels in guinea pigs. Long-term ovx of guinea pigs resulted in increased levels of total brain $A\beta$, as compared to intact animals, and the $A\beta_{42}/A\beta_{40}$ ratio was also elevated. Treatment of ovx guinea pigs with $\beta 17$ -estradiol for ten days partially reversed the ovx-associated increase in brain $A\beta$ levels.